

# Work Order ID 61116

August 10, 2010 11:40:34 AM



Page 1

Item ID: D350-748-201

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Installation, High Aft

Start Date: 8/06/10 Start Qty: 1.00



Cust Item ID:

Required Date: 8/13/10 Req'd Qty: 1.00



Customer:

Reference: RA110068 - RETURN

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

Draw Nbr

Revision Nbr

D350-748-241

Rev E

100

0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile & type labels per PPPD350-748-201

CHG001

MF 10-8-13

8/10/2013

105

0.00



QC

Memo

0.00

Quality Control

INSPECT RA110068

8/10/2013

10

# Work Order ID 61116

August 10, 2010 11:40:34 AM



Page 2

Item ID: D350-748-201

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Installation, High Aft

Start Date: 8/06/10 Start Qty: 1.00



Cust Item ID:

Required Date: 8/13/10 Req'd Qty: 1.00

Customer:

Reference: RA110068

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



Stop



Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

200

0.00



Crosstubes

Crosstubes

Crosstubes

Memo

0.00

-REMOVE CLAMPS & SUPPORTS -KEEP  
REMOVE ABRASION STRIPS-SCRAP

-BUFF AFFECTED AREA OF MISSING CAD PLATE, SMOOTH

-LPT TO VERIFY THERE ARE NO CRAKS

-BRUSH CAD AREA PER ICA-D350-748 REV.1 SECTION 5.2.4 APPLY  
BRUSH CADMIUM PER MIL-STD-883C SECTION 5.5.5  
DO NOT BAKE CROSSTUBE AFTER CADMIUM APPLICATION.

-TOUCH UP FINISH - ml 10/08/13

-INSTALL NEW ABRASION STRIPS

2 X D2856-400-710 B

RE-INSTALL ORIGINAL CLAMPS AND SUPPORTS

(Install Abrasion strips as per Dwg D350-748-141 & QSI 035.)

(Install supports Using Dt8876 as per Dwg D350-748-141, Torque to 60-80 IN-  
LBS )

ml 10 08 13 (7)

10/08/13

NA

**Work Order ID 61116**

August 10, 2010 11:40:35 AM

Page 3

Item ID: D350-748-201

Accept

Setup Start

Revision ID:

Stop

Item Name: Crosstube Installation, High Aft

Start Date: 8/06/10 Start Qty: 1.00

Required Date: 8/13/10 Req'd Qty: 1.00

Cust Item ID:

Customer:

Reference: RA110068

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

210

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

220

Pick Kit

0.00



Packaging

Memo

0.00

Packaging

ENSURE ORIGINAL KIT IS INCLUDED IN BOX

230

QC4- 100% Inspect kits for completeness

0.00



QC

Memo

0.00

Quality Control

# Picklist Print

August 10, 2010 11:40:33 AM

Page 1

Work Order ID: 61116



Parent Item: D350-748-201



Parent Item Name: Crosstube Installation, High Aft

Start Date: 8/06/10

Required Date: 8/13/10

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev: A New Issue 06-07-05 JLM  
 IPP Rev: B Update qty of MS21042L5 06-09-12 KJ  
 IPP Rev C Combined manufacturing 08.04.02 EC verified by: DD  
 IPP Rev:D 08-06-24 revD as per dwg DD verified by:EC  
 IPP Rev: E 08.12.11 Step17 was step 21 KJ Verified by:EC IPP Rev:F  
 10.08.04 added QSI010 4.3 DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D2856-400		Manufactured	No			200	f	340.9788	1.181	1.243158			



Abraison Strip

## Location

## Loc Qty

## Loc Code

ST403

340.9788421

56626

124.978842

59920

216

1- cut as per dwg D2856

D350-748-201

Manufactured No

Each

0.0000

1



Crosstube Installation, High Aft

ORIGINAL B48220

<b>DART</b> Dart Aerospace Ltd. 1270 ABERDEEN ST. HAWKESBURY, ON, CANADA K6A 1K7				TC APPROVAL # 09-89 TEL: 1-613-632-5200	
P/N	D350-748-201	CHG	CHG001		
DESC.	Crosstube Aft High	STC	SH06-27		
LOT	B48220	STC	SR02359NY		
MODEL	AS350/355	STC			
MADE IN CANADA					
D2729-1					

Item	Qty -241	Part Number	Description
1	X	D350-748-241	CROSSTUBE ASSEMBLY (AS 350/355 HI AFT)
2	1	D6018-125	CROSSTUBE
3	2	D3502-1	SUPPORT
4	2	D2856-400-710	ABRASION STRIP
5	1	AELS-1032-225	INSERT
6	1	NAS1149D0363J	WASHER (OR AN960JD10)
7	2	MS21920-20	CLAMP (PER DART SPEC. M-MS21920-20)
8	1	MS27039-1-10	SCREW

# **GENERAL NOTES:**

- 1) MATERIAL: MANUFACTURED FROM D6018-125  
FINISHED LENGTH = 122.700±0.06
- 2) FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2  
CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D350-748-241" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 29.85 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø0.297 HOLE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING.
- 12) INSTALL D2856-400-710 ABRASION STRIPS WITH A GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D3502-1 SUPPORT, PER QSI 035.
- 13) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.
- 14) TORQUE CLAMPS 60 TO 80 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

E	REVISE GENERAL NOTES: UPDATE TO CURRENT STANDARDS; RELOCATED FLAG #6 PER PAR 08-046 (ZN A8-3); ADD TOLERANCES (ZN C6-3, D2-3)	RF	09.09.30
D	MAG. PARTICLE AND CAD PLATE AS MFD.	CP	06.10.31
C	ADD CAD PLATING	CP	06.08.14
B	ADD D6018-125 & PRIME AND PAINT	CP	06.06.30
A	NEW ISSUE	CP	06.03.31
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	RF	DRAWING NO.	REV. E
MFG. APPR.	RF	D350-748-241	SHEET 1 OF 4
APPROVED	RF	TITLE	SCALE
DE APPR.	RF	CROSSTUBE (AS 350/355 HI AFT)	NTS
DATE	09.09.30	COPYRIGHT © 2006 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD	

D350-748-201 B \$18200 CHG001

- Kit complete. Paper work (7000

- ~~Kit~~ x-tube needs touch ups + Abrasion strips

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QCS inspect Return.

Cable

x-tubes

- Remove original supports + clamps (Keep)

- Remove Abrasion strips.

- install new ~~AB~~ abrasion strip per Day. B<sup>+</sup> \_\_\_\_\_

- Re install original supports + clamps per Day.

- touch up touch ups w/ mmm per as2005.

QCS - inspect work

Packings - Package with original Kit + Paper work

- install new Cables (white + Red) with new Bots + @ CHG004

QCY - insure original Kit is in Box.

POP

QCS1

Work Order ID 55512

January 19, 2010 2:25:39 PM

Page 1

Item ID: D350-748-101

Accept

Setup Start

Revision ID:

Stop

Item Name: Crosstube Installation, High Fwd

Start Date: 1/20/2010 - Start Qty: 1.00

Required Date: 2/9/2010 Req'd Qty: 1.00

Cust Item ID:

Customer:

Reference:

Approvals: Process Plan: *mf*

Date: *10-1-19* Tooling:

Date:

QC:

Date: SPC (Y/N):

Date:

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Draw  
Number

Draw  
Rev.

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

Draw Nbr

Revision Nbr

D350-748-141

Rev E

100

0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile & type labels per PPPD350-748-101

MCHG001

110

0.00



BENDING MACHINE - CROSSTUBES

CNC Bend 1

Memo

0.00

CNC Delta 100 Bender

Bend tube as per Dwg D350-748-141 using CNC bender program D350F and Folio FT

120

QC15- Crosstube Dimensional Check

0.00



QC

Memo

0.00

Quality Control

*10-5-31*

*10.06.01*

**L Lacelle**

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**From:** Jason Murdoch [jmurdoch@dartaero.com]  
**Sent:** August 9, 2010 12:43 PM  
**To:** 'Linda Lacelle '  
**Cc:** 'David Shepherd'; 'Mike Petsche'; 'Bill Beckett'; 'Chris Provencal'  
**Subject:** RE: Returned 350 crosstube with scuff mark.  
**Importance:** High

Linda,

I believe that Heli Trades in Vankleek Hill can do this to the standard. We will have to send them another approved vendor form prior to the re-work.

I still have to finalize the credit note for this return, but I would need a \$ for the cad plate re-work, & the cost of re-working & painting the center of the tube. This affects w/o 61116 D350-748-201 / RA110068.

Thanks,

**Jason Murdoch**  
**Quality Coordinator**  
jmurdoch@dartaero.com  
**DART Aerospace Ltd.**  
**613-632-5200**

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**From:** Chris Provencal [mailto:cprovencal@dartaero.com]  
**Sent:** Monday, August 09, 2010 11:47 AM  
**To:** 'Linda Lacelle '  
**Cc:** 'Jason Murdoch (E-mail)'; 'David Shepherd'; 'Mike Petsche'; 'Bill Beckett'  
**Subject:** Returned 350 crosstube with scuff mark.

Linda,

Regarding the returned D350-748 crosstube with the scuff mark, the mark appears to be down to bare metal. We should:

- Buff the affected area smooth
- LPI the area to verify there are no cracks
- Brush Cad the area per ICA-D350-748 Rev. 1 section 5.2.4: apply brush cadmium per MIL-STD-856C section 5.5.5. Do not bake the crosstube after cadmium application as optionally indicated in MIL-STD-856C.
- Touch up finish

Chris

8/09/10